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06/20/97

TO: **Jet Propulsion Laboratory**
Attn: Mr. Kirk Bilby
MS 190-220, Org 6271
4800 Oak Grove Drive
Pasadena, CA 91109-8099

SUBJECT: Letter Of Transmittal, Monthly Status Report

In accordance with Contract #960100, Infotec Development Inc. hereby submits one original hard copy of DRD MA006, Monthly Progress Report, for the month of, May 97. Please contact me at 818-584-0878 for questions.

R. KENT THOMSON
ISDS Program Manager

Original and Copies to Mr. Don Lord (525 3600)

Cover Letter and Cost Appendices to:
Mr. Kirk Bilby (190 220)
Mr. David Spencer (264 426)

Information Systems Development Support (ISDS) Contract
Monthly Progress Report

Developed by
The ISDS Team
2700 E. Foothill, Suite 200
Pasadena CA 91107

Under Contract No. 960100
Control Number: \MAR's\..\9705-00.DOC Rev 0
DRD # MA006
for the month of May 97

for the

California Institute of Technology
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena CA 91109-8099

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1. Executive Summary

"A brief narrative on significant accomplishments and events of the reporting period."

- From last month:
  We are waiting on Pacific Bell to install a fiber optic cable in our building to establish a T3 connection to JPL. Installation has been delayed while PacBell applied with the City of Pasadena to dig a trench from Colorado to Foothill Blvd. for the cable. PacBell got the paperwork through in record time, and we expect the T3 to be installed in the first week of June. This will be a resource for all ISDS Work Orders.

  Update: The T3 should be operational on 23 June.

Significant personnel actions since the last report:

- CWO 11 - On 20 June, Mr. Greg Ellis began working under a short contract to identify Year 2000 problems with the Subsystem Interface Verifier (SIV).
- Mr. Steve Rockwell resigned on 2 June. His position as CWO Manager is open.

Open staff requirements

- Sec 345, Automation and Control, Muh Yang, GEOSAR:

  We have stopped working to identify two people with VxWorks talent to support a new project for Mr. Muh-Wang Yang, Automation and Control Section, Avionic Systems and Technology Division, Engineering and Science Directorate. We became aware of this requirement on 11 April and have identified several well qualified candidates. None of the candidates fit within the required cost profile.

  On 19 June we were informed that budget constraints have been lifted and more attractive salaries can be offered to candidates. We have begun looking for people again.

- Sec 345, Automation and Control, Jim Wang, Tropospheric Emission Spectrometer:

  This project was identified to us on 17 June. On 19 June, it was identified that two individuals with real-time S/W development experience using VxWorks on RISC6000 processors are required. One immediately, on in November 97.

- CWO 61 - Within 30 days from the time requirements were identified, we have staffed an effort to convert and upgrade the Cassini Contract Management Information System (CMIS) from FoxPro to PowerBuilder 5.0. Personnel working this CWO are Tommy Siow and Sam Panditaradyula. This CWO is not yet out of JPL contracts.

- Section 394, Imin Lin, 22 May:

  Requirements were identified on 22 May for a person to work Network Control Program GlueWare. GlueWare is object oriented software developed for multiple purposes: 1) wrap selected portions of

Multi-Use software for reuse, 2) Provide legacy system proxies, 3) provide unique DSN protocol gateways. We have are interviewed several personnel and will be issuing offers this week.

Contract Work Orders and Staff

13-Jun-97

#	Title	CWO Manager	Staff Members	
3	**Telemetry Simulation Assembly (TSA II)**	**Kathleen Rundstrom**		
			Ron	Holden
			Youbin	Mao
			Matthew	Dailey
			Shyan-wee (Joseph)	Jao
8	**Section Network/System Administrator**	**Roger Thomson**		
			Hajime	Sano
11	**CSN Multi-Use S/W (MSW)**	**Kathleen Rundstrom**		
			Nhon	Hoang
			Julianna	Magallon
13	**Goldstone Solar System Radar Data Acquisition Sys**	**Roger Thomson**		
			Robert	Frye
			Chad	Nikoletich

#	Title	CWO Manager	Staff Members	
14	**DSCC Telemetry Subsystem (DTM) Software**	**Kathleen Rundstrom**		
			Calvin	Cheung
			Bo	Cen
			Ron	Holden
			Hon	Tran
15	**Product Verification Subsystem/SSCANSAR**	**Kathleen Rundstrom**		
			Kenneth	Bell
16	**Enhancement & Maintenance of Metric Prediction**	**Steve Rockwell**		
			Jonathon	Walther
			Jeffrey	Schredder
17	**GCF Interface**	**Edward Embick**		
			David	Haupt
27	**Advanced Comm Services (ACS) Data Delivery**	**Kathleen Rundstrom**		

#	Title	CWO Manager	Staff Members

28	**Advanced Comm Services (ACS) Monitor/Control**	**Kathleen**	**Rundstrom**		
				Erik	Barkley
29	**Monitor & Control X-Server Support**	**Edward**	**Embick**		
				Jay	Cai
30	**Network Control Program Common Services**	**Roger**	**Thomson**		
				Robert	Donnelly
				Geoffrey	Coward
31	**Adv Comm Svcs Rel Net Svc CS**	**Kathleen**	**Rundstrom**		
				Michael	Dern
32	**Adv Comm Svcs Telem Chanl Assmbly CS**	**Kathleen**	**Rundstrom**		
33	**DSCC Radio Science Comm Processor S/W**	**Kathleen**	**Rundstrom**		
				Vui	Vu
36	**Section 395 Programming Support**	**Edward**	**Embick**		
				John	Veregge

#	Title	CWO Manager	Staff Members

38	**SETS/OIS**	**Roger**	**Thomson**		
				Rhonda	Bagnato
39	**SPMC Support**	**Roger**	**Thomson**		
				Gary	Oye
43	**System Admin Support to EIS**	**Roger**	**Thomson**		
				George	Wang
				David	Coppedge
				Michael	Huang
45	**Sea Dragon Command Center Test Bed**	**Kathleen**	**Rundstrom**		
				Michael	Guadarrama
46	**EIS File Service Technical Writer**	**Edward**	**Embick**		
				Susan	Kientz
47	**VLBI Project Software Engineer**	**Edward**	**Embick**		
				Jeff	Deifik
48	**MGSO Documentation Technical Support**		**Edward**	**Embick**	
				Martha	Perdomo
49	**Duplicating and Distribution Support**	**Edward**	**Embick**		

			Concepcion	Alvarez
			Iris	Young
			Hao	Le
			Geroge	Mondol
50	**Electronic Forms and Inventory**	**Edward**	**Embick**	
			Dave	Swantek
			Karen	Gerfen
52	**NPP Development Center**	**Steve**	**Rockwell**	
			Steve	Rockwell
53	**34 Meter Array Development**	**Kathleen**	**Rundstrom**	
			Ron	Holden
54	**Galileo CD Technical Writer**	**Edward**	**Embick**	
			Susan	Kientz
55	**TC & DM Test Support**	**Edward**	**Embick**	
			Cindy	Lush

#	**Title**	**CWO Manager**	**Staff Members**

56	**SPC and DMD Implementation**	**Edward**	**Embick**	
			Clyde	Chadwick
			Jin	Ma
57	**UNIX System Administrator**	**Edward**	**Embick**	
			Dimitrios	Gerasimatos

2. CWO Status and Recommendations

Paragraphs in bold italics below identify the generic context in which the status of each active CWO will be discussed. This is presented here as a guideline for both the writer and the reader.

Performance Status

"The Contract Work Order Manager's assessment of progress made in meeting the requirements of the CWO. The CWO Manager shall identify current problems associated with these efforts and any corrective actions to be taken."

Major Accomplishments

"Identify contractual deliveries, accomplishment of critical activities, Contract reviews and CWO milestones."

Cost/Funds Status

"Address relevant areas of cost, such as potential cost problems, their estimated magnitude, planned corrective action and predicted cost outcome. Any projected changes in the CWO's cost Estimate-at-Completion (EAC) shall be fully explained. Contrast the EAC with the current funds ceiling and identify funding shortfalls or overages. Identify funds expiration date."

Schedule Status

"Identify activities and milestones that have slipped from the baseline schedule, with the reason(s) for the slip, and identification of the corrective action measures implemented."

Quality/Config Management

"The Product Assurance Program Manager's assessment of this CWO including current issues, accomplishment of tasking, plans, changes to budget requirements, et al."

Problems and Proposed Solutions Summary

"The CWO Manager's summary of problems and proposed solutions including requirements for support from JPL."

Plans

- *"Forecast Accomplishments. Identify activities and milestones that are expected to be completed during the next reporting period."*
- *"Proposed Re-plans. Identify schedule items that should be replanned and new items to be incorporated into the established baseline schedule."*

"Proposed Cost Adjustments. Identify adjustments to the CWO Target Cost which are required for changes in scope."

CWO Status Summary

CWO #	Title	Cost	Schedule	Performance	Staff	Funding
3	Telemetry Simulation Assembly (TSA II)					
8	Section Network/System Administrator					
11	DSN Multi Use Software (MSW)					
13	Goldstone Solar System Radar Data Acquisition					
14	DSCC Telemetry Subsystem (DTM) Software					
15	Product Verification Subsystem/SSCANSAR					
16	Enhancement & Maintenance of Metric Prediction Software					
17	GCF Interface (GIF)					
27	Advanced Communications Services (ACS) Data Delivery					
28	ACS Monitor & Control (M&C)					
29	M&C X/Server Supt					
30	Network Control Program					
31	Reliable Network Server					
32	ACS TCA Common Svcs					
33	Radio Science					
36	Sec 395 Programming Supt					
39	SPMC Support					
43	EIS Sys Admin Supt					
45	Sea Dragon Command Center Test Bed					
53	34 Meter Array Development					
54	Galileo CD Technical Writer					
55	TC & DM Test Support					
56	SPC and DMD Implementation					
60	Command Processor Assy					
GOOD						
WATCH CLOSELY						
IN TROUBLE						

2.1 CWO 01 was closed on 25 Jan 95

2.2 CWO 02 was closed 17 Sep 95

2.3 CWO 03 - Telemetry Simulation Assembly (TSA II)

2.3.1 Performance Status

2.3.1.1 Major Accomplishments

- Continued the development of TSAC software, with AVTEC's new interface definition. Reviewed the interface definition and, reported potential problems to JPL and resolved issues with Avtec.
- Upgraded operating system from Solaris 2.4 to Solaris 2.5 on current TSA II controller and channels. Validated application functionality on new OS and updated installation guide. Recompiled TSA controller software under Solaris 2.5 and integrated it with latest release of MSW.
- Redesigned the TSA II Top Level Display (STS).

2.3.1.2 Cost/Funds Status

- CWO 3-3 for FY97 is running under budget because Douglas Lam was taken off the Work Order at the customers request in November of 1996, Youbin Mao went on vacation in December'96 and Mr. Shyan-Wee Jao, a consultant, did not charge the work order from Dec.'96 through Jan'97 and Mar.'97.

2.3.1.3 Schedule Status

- The software schedule has slipped to accommodate the uncertainty in the hardware development area. Matthew Daily was added to the work order in early May to help alleviate the schedule slips.

2.3.2 Quality/Config Management

- Idle.

2.3.3 Problems and Proposed Solutions Summary

- None.

2.3.4 Plans

- Continue development of the TSAC software.
- Work on software exerciser for Avtec Telemetry Simulator card.

2.4 **CWO 04 -** was closed on 3 Jan 1995.

2.5 CWO 05 - Design Engineering and Logistics Support

- This work order is now defunct as the task has been outsourced to Allied Signal. A contractual action by JPL has been requested to close the CWO.

2.6 CWO 6 - was closed on 17 Sep 95.

2.7 CWO 7 - was closed on 17 Sep 95

2.8 CWO 8 - Section Network/System Administrator

2.8.1 Performance Status

2.8.1.1 Major Accomplishments

This is an ongoing network administration task consisting of general administrative actions, hardware upgrade/install/troubleshoot actions, new/upgrade/troubleshoot software actions, and solution of network related problems. Noteworthy activities include:

- Novell server- Bob Sniffin would like to upgrade JPL-161-SERV as it is nearing the end of its useful life span. Approached managers for funding. Received funding commitments from Ted Peng, Nasser Golshan, Sami Asmar, Polly Estabrook, and Jim Lesh.
-

2.8.1.2 Costs/Funds Status

- CWO 8-4 for FY97 is on budget.

2.8.1.3 Schedule Status

- This is a LOE support task with no schedule baseline.

2.8.2 Quality/Config Management

- N/A

2.8.3 Problems and Proposed Solutions Summary

- None

2.8.4 Plans

- Continue system and network support.

2.9 CWO 9 - DSCC Tracking Subsystem (DTK) Software: Metric Data Assembly was completed on 15 Sep 96.

2.10 CWO 10 - MPA Enhancements - Automate 26M Operations was completed on 15 Sep 96

2.11 CWO 11 - DSN Multi-Use Software (MSW)

2.11.1 Performance Status

2.11.1.1 Major Accomplishments

Major Accomplishments

- Van Hoang has completed code changes of the LMC Simulator. This is necessary to reproduce TSA AR's.
- Support was provided by both Van Hoang and Julie Magallon to the following subsystems:
- Block V Receiver (BVR)
- Telemetry Channel Assembly (TCA)
- Translator Service
- Antenna Pointing Control (APC)
- Metric Data Assembly (MDA)
- SIV support is being provided to Translator Service.

2.11.1.2 Cost/Funds Status

- CWO 11-7 is going to overrun by17K because Ms. Julie Magallon service was extended through the end of JPL Fy97. Supplement has been submitted and is with PCWO.

2.11.1.3 Schedule Status

- On schedule.

2.11.2 Quality/Config Management

- Updated RDD and delivered build for MSW 1.8.2

2.11.3 Problems and Proposed Solutions Summary

- None.

2.11.4 Plans

- Start code walk through of MSW to detect any Year 2000 noncompliance issues.
- Complete the MSW matrix.
- Start the incorporation of multiple semaphore code change in MSW.

2.12 CWO 12 - was closed on 17 Sep 95

2.13 CWO 13 - Goldstone Solar System Radar Data Acquisition System Design and Integration

2.13.1 Performance Status

2.13.1.1 Major Accomplishments

- CAB schematics modified.
- Proto CAD board was tested with TAXI board and a PN test generator and was validated.
- Assembled, tested and validated a 2nd proto-board.

2.13.1.2 Cost/Funds Status

- CWO 13-6 for FY97 is under budget by $60k because of 1) ODC of 18K for production of correlator boards being shifted out to June '97 and 2) anticipated labor hours are lower by 764 hrs to be used between April '97 and end of Fiscal year.

2.13.1.3 Schedule Status

- Tasks are on schedule - See attachment.

2.13.2 Quality/Config Management

- N/A.

2.13.3 Problems and Proposed Solutions Summary

- State machine for DSP transfer cannot operate at 40MHz. New Xilinx chips on order to remedy the problem.

2.13.4 Plans

- Verify operation of CAB with BLK V RCVR.
- Manufacture final CAB CCAs.
- Start design of PN coder.

2.14 CWO 14 - DSCC Telemetry Subsystem (DTM) Software

2.14.1 Performance Status

2.14.1.1 Major Accomplishments

- A new TCA green build was delivered to SPMC (OP-J version 10.1.2)
- Patches were made to the green build and delivered to SPMC at JPL's request to fix the Virtual Stream ID in the DDD header for the ACE team. Calvin Cheung support ACE compatibility testing at GSFC. **The telemetry team received a letter of thanks and appreciation from Michael Stollof of TMOD for the their fast response to the ACE telemetry problem.**
- The telemetry team is performing ongoing anomaly fixes to TGC/TCA software based on reports coming out of Acceptance Testing. These anomaly fixes will be delivered as part of future releases of the Phase 2.0 software. Most of the anomalies have been successfully corrected by the telemetry team, and they are currently concentrating their efforts on solving a data corruption anomaly that has now been traced to vendor operating system software. See Problems and Proposed Solutions.
- During the entire month of May, Ron Holden provided OPS and Engineering training to the Canberra station. He assisted in hardware/software installation in groups 1 and 3 and provided early test support for ACS data flow.
- Made significant progress toward the generation of the AXAF format table.

2.14.1.2 Cost/Funds Status

- CWO 14-7 has a funding shortfall of about 22K due to personnel changes, and customer authorized overtime required to meet the MARS Global Surveyor delivery on May 1, 1997. Mr. Ron Holden

was authorized by JPL to travel to Australia to perform training at the Canberra station. Since this trip was unanticipated, the planned travel budget was exceeded. A CWO supplement will be submitted to adjust the allowable cost.

2.14.1.3 Schedule Status

- The planned completion of Acceptance Test by Allied Signal (June 2, 1997) has been delayed two weeks until a solution can be found for the remaining Class A anomaly (described in the Problems and Proposed Solution Summary below). A new schedule for the remaining FY1997 work will be released on June 30, 1997 by ISDS.

2.14.2 Quality/Config Management

- Delivered TCA green build OP-J Version 10.1.2. .
- Updated the TCA RDD and re-delivered the TCA green build OP-J Version 10.2.4 with the latest VXWorks kernel version (1.0.3). It is currently in Acceptance Test.

2.14.3 Problems and Proposed Solutions Summary

- The TCA software has a significant Class A anomaly. Data blocks from the TCA are being corrupted randomly. After a great deal of debugging and analysis by the telemetry team, the problem has been traced to vendor software (the VXWorks kernal software from Radstone). The vendor has been able to duplicate the problem and is currently working on a solution, but it will take time for them to fix it. They have suggested a workaround (disabling the cache) which solves the data corruption problem, but causes tasks to abort at high data rates (over 500Kbps). JPL has determined that the work around will be used to solve the data corruption problem, and the existing software will be used to support projects requiring data rates over 500Kbps, until a permanent solution is offered by Radstone.
- ISDS needs to find replacements for telemetry team members Calvin Cheung and Ron Holden who are phasing into new projects.

2.14.4 Plans

- Continue work on fixing the remaining Class A anomaly, other lower priority anomalies and new anomalies that surface during Acceptance Testing.
- Participate in the requirement analysis phase for the next DTM delivery scheduled for September
- Find replacements for telemetry team members Calvin Cheung and Ron Holden.

2.15 CWO 15 - Alaska SAR Facility Product Verification Subsystem Processor S/W

2.15.1 Performance Status

2.15.1.1 Major Accomplishments

- N/A - This project is currently in a maintenance and refinement phase requiring approximately 4 hrs per week level of effort.

2.15.1.2 Cost/Funds Status

- CWO 15-3 is significantly under budget because two personnel have been moved off this CWO and not replaced. We are interested in replacing these personnel but, to date, JPL has not indicated any immediate need.

2.15.1.3 Schedule Status

- Schedule maintained by JPL.

2.15.2 Quality/Config Management

- Backups, CM provided internally. Deliveries made directly to project without going through SPMC. JPL maintains ASF-delivered configuration.

2.15.3 Problems and Proposed Solutions Summary

- None

2.15.4 Plans

- Continue work on maintenance and refinement phase of this task until end of fiscal year.

2.16 CWO 16 - Enhancement & Maintenance of Metric Prediction Software

2.16.1 Performance Status

2.16.2 Major Accomplishments

- Found flaws in the new system configuration installed by the JPL SA's.
- Built and ran the Workflow Manager Interface demonstration program.
- Determined modifications to Workflow Manager Interface package required for Predict Services.
- Plans:
- Solar System Modeler.

2.16.2.1 Cost/Funds Status

- CWO 16-6 is projected currently underfunded by 196K. Additional scope has been added to the CWO at JPL's request and a CWO supplement has been submitted to cover the increased cost.

2.16.2.2 Schedule Status

- Schedule maintained by JPL.

2.16.3 Quality/Config Management

- N/A.

2.16.4 Problems and Proposed Solutions Summary

- System Administration remains an ongoing headache.

2.16.5 Plans

- Continue integrating Workflow Manager Interface into Spacecraft and

2.17 CWO 17 - GCF Interface (GIF)

2.17.1 Performance Status

- Mr. David Haupt, hired as a consultant, is supporting:
  1. the development and unit test of a global set of GIF data block conversion libraries,
  2. a standalone interface program for processing CDR IDR files and outputting converted data to TCDM standard core services,
  3. and a new input and output interface to FTDD services which is scheduled to complete September 21, 1997.

This support includes adding new capabilities, failure report correction, change request implementation, and documentation updating prior to delivery to AMMOS configuration control.

2.17.1.1 Major Accomplishments

- Nothing to report this month.

2.17.1.2 Cost/Funds Status

- CWO 17-3 has been extended through the end of JPL FY97 and funding has been increased. At this time Mr. Haupt is providing only about 20% of the budgeted level of effort.

2.17.1.3 Schedule Status

- Schedule is maintained by JPL.

2.17.2 Quality/Config Management

- N/A.

2.17.3 Problems and Proposed Solutions Summary

- None.

2.17.4 Plans

- Continue work on GIF Status Broadcasting and Logging of Unrecognized Blocks Failure Reports.

2.18 CWO 18 - was closed on 17 Sep 95

2.19 CWO 19 - was closed on 17 Sep 95

2.20 CWO 20 - was closed on 29 Dec 95

2.21 CWO 21 - was closed on 17 Sep 95

2.22 CWO 22 - was closed on 7 Mar 95

2.23 CWO 23 - was closed on 17 Sep 95

2.24 CWO 24 - was closed on 18 Sep 95

2.25 CWO 25 - was closed on 31 Oct 95

2.26 CWO 26- was closed on 5 Dec 95

2.27 CWO 27- Advanced Communications Services (ACS) Data Delivery

2.27.1 Performance Status

2.27.1.1 Major Accomplishments

- RNS (Reliable Network Server): Wayne Tung and Brian Schlaeden, ISDS engineers, performed software engineering and test in support of the upcoming ACS/RNS delivery for MGS. Accomplishments and activities include the following:
    - Provided RNS acceptance test support, correcting anomalies found during acceptance test.
    - Provided support for the RNS during the ACS End-to-End test.
- SFG (Special Function Gateway) - Brian Schlaeden supported testing with Goddard Space Center for the IP and ACE/ISIS interfaces, including on-site support for one ACE/ISIS test.

2.27.1.2 Schedule Status

- On Schedule

2.27.1.3 Cost/Funds Status

- CWO 27-2 is going to be under budget by 134K due to Wayne Tung and Chris Yung leaving ISDS and not being replaced on the work order by the JPL customer.

2.27.2 Quality/Config Management

- Idle.

2.27.3 Problems and Proposed Solutions Summary

- None

2.27.4 Plans

- Continue to support RNS testing.
- Replace Wayne Tung, who left ISDS in May.

2.28 CWO 28- Advanced Communications Services (ACS) Monitor & Control

2.28.1 Performance Status

2.28.1.1 Major Accomplishments

- Central Data Recorder (CDR): Stan Mak, an ISDS Engineer and CDE for the CDR program, is also performing software development and test in support of the upcoming MGS delivery of the new CDR. Accomplishments and activities include the following:

- Completed updates to CDR documentation including the SOM, Web Browsers Users Guide and the STP
- Completed the CDR op B training material and conducted several CDRop B training sessions for the Comm Chiefs and Techs.
- Supported several ACS end to end data flow tests from Goldstone and overseas complex. IDRs generated from CDR were sent over to the GIF for verification.
- Completed the CDR op B version 2.1.4 test and transfer meeting. A work around to the CDR manual IDR generation anomaly was documented and tested.
- Provided real time support to the Comm Chiefs on the operational CDR running CDR op A version 1.3.10. The operational CDR had many failure due to juke box problem. Each failure required a lot of work to isolate the problem and bring the operational CDR back on line. Many of the failures had occurred at nights and on weekends. More than 60 hours of the CDE's time were spent on keeping the operational CDR running.
- Continued to work on the design of the CDR op C to replace the juke boxes with disk arrays.

GCF Monitor and Control Program Eric Barkely, an ISDS Engineer, has been asked to become the GMP CDE and is also performing software development and test in support of the upcoming MGS delivery of the new GMP. Eric is also providing expertise in the debugging and enhancement of the legacy GMP system currently in place. Accomplishments and activities include the following:

- Provided detailed installation instructions for temporary GMP workstations at the DSCCs.
- Generated GMP workstation make files so that workstation is built from same sources as the GMP, where appropriate.
- Performed various minor anomaly corrections.

2.28.1.2 Cost/Funds Status

- CWO 28 -2 for FY97 is going to be under budget by 10K due to Stan Mak leaving ISDS and not being replaced on the work order by the JPL customer.

2.28.1.3 Schedule Status

- GMP is on Schedule.
- CDR is on Schedule

2.28.2 Quality/Config Management

- Idle

2.28.3 Problems and Proposed Solutions Summary

- Until the CDR juke boxes are replaced, the operation will continue to have problem with the CDR. Data loss had happened and is likely to happen again. The juke box replacement task is urgent.

2.28.4 Plans

- CDR
    - Replace Stan Mak who left ISDS in May.

- GMP
    - Support GMP soak test
    - Begin knowledge transfer from outgoing CDE (in particular, with respect to the NMC interface, and accountability processing).

2.29 CWO 29 - Network Monitor & Control Trans/Server Support

2.29.1 Performance Status

- CWO 29 is a Cat A position with requirements for support coordinated, but not directly managed by ISDS. Mr. Jay Cai has been working under this CWO as a consultant. No support was provided during the month of May.

2.29.1.1 Major Accomplishments

2.29.1.2 Cost Funds Status

- No work was performed under this CWO in April or May. At the level of support requested by JPL, this CWO would be underfunded by 13K. The customer is aware a modification is needed to cover Mr., Jay Cai's charges and a supplement has been submitted.

2.30 CWO 30 - Network Control Program Common Services

2.30.1 Performance Status

2.30.1.1 Major Accomplishments

Major Accomplishments

- Geoff Coward worked on SCF Delivery 1.
    - Found and corrected several bugs.
    - Updated source to change library and include file conventions.
    - Found more potential problems that will be held until Delivery 2.
    - Worked on SCF document updates for next SPMC version.
- Geoff Coward wrote draft SRD and SSD for SCF Delivery 2 which is now ready for internal review.
- Bob Donnelly installed Geoff's latest SCF into AFS prototype area.
- Bob Donnelly hosted AT Readiness Review on 5/21/97 with OSEs and other interested parties to review documents, traceability, anomalies, and DCE/DFS problems.
- Bob Donnelly and Geoff Coward inspected NCP equipment at DTF-21 and Central Ops and discussed networking with various people at these facilities.
- Bob Donnelly reviewed and started updating all MCIS documents and created CS AT dependency document.
- Bob Donnelly provided input to the project on performance monitoring tools, ops .profile,
- Bob Donnelly updated MCIS in ClearCase and installed new version in AFS prototype area.
- Bob Donnelly worked on plan for startup of NCP server machines and scripts for auto-starting MDS Server at boot time.
    - Bob Donnelly ran MCIS performance tests with OSE to complete testing

- Bob Donnelly performed SysAdmin on ISDS (CWO 30) Suns.
  - Installed Solaris 2.5.1 from scratch (was at 2.5 and disk partition change was needed).
  - Backed out old Solaris patches and installed current recommended patch list on 6 workstations.
  - Performed firware upgrade on 2 workstations.
  - Installed 2nd CPU in donald and 100 Mbit cards in hoot and bigred.
  - Installed a more secure sendmail on 6 workstations.

2.30.1.2 Cost/Funds Status

- On budget.

2.30.1.3 Schedule Status

- On schedule.

2.30.2 Quality/Config Management

- Updated RDD and delivered build for NCP MCIS1.1.2A

2.30.3 Problems and Proposed Solutions Summary

- There are issues involving DSCC to Central Ops networking such as priority setting and expected bandwidth that need to be resolved.
- The NCP Delivery 1 Phase 1 H/W delivery includes only 1 NMC WS at each station. A possible solution is to get 2 NMC WSs at DTF-21 but not at Goldstone, but the OSEs need to agree to this.
- Progress by EIS and NCP in setting up and configuring NCP hardware and infrastructure software is slow. This is holding up CS AT.
- There are many unresolved issues at the project level, many involving DCE and DFS such as accounts, CDS and DFS directories, DCE groups, etc. Starting CS AT, testing MCIS startup scripts, and NMC PAT are all dependent on a subset of these issues.
- There is a push to start CS AT so this progress can be reported to TMOD. Because of the previous two problems, CS may be forced to start AT with many outstanding issues. In preparing for PAT, CS spent over 3 months trying to test in the NCP test bed. Most of this time was spent resolving DCE/DFS issues instead of working on CS testing since the state of the test bed was constantly changing and CS was used to find the problems. If CS is pushed to start AT before DTF-21 and Central Ops are really ready, this scenario will likely be repeated. Given the small size of the CS staff, we will end up making little or no progress on other important issues such as defining SCF Delivery 2 (in which customers are already interested), starting on other top priority Delivery 2 items, and improving ISDS infrastructure for Delivery 2 development.
- The continuing uncertainty of NCP Delivery 2 (mostly, what items will be funded) makes long term planning difficult.

2.30.4 Plans

- Work on NCP Startup scripts for MDS Server.
- Track readiness for CS AT and deliver new software versions and documents just before AT starts.

- Continue SysAdmin at ISDS.
- Work on SCF Delivery 2 plans and specifications.

2.31 CWO 31 - ACS RNS CS

2.31.1 Performance Status

2.31.1.1 Major Accomplishments

Fault Tolerant Data Delivery (FTDD) and GCC Accountability Software (GAC): Michael Dern is the lead engineer for the FTDD and GAC software development effort, which are Common Software Components required to support the upcoming ACS delivery of the new RNS. Mike has also been critical in assisting the rest of the RNS team in their development and test efforts. Accomplishments and activities include the following:

- Supported TCA, CDR, SPT, RNS, MGSO in FCS usage, testing, and analysis
- Began work of design of 890-201/890-131 to/from FTDD translator.
- Provided critical support required by the TCA team in debugging, analyzing and solving several class A anomalies in the TCA software. He was crucial to the team in tracking down anomalies involving TCA board hang-ups, interrupt 13 errors, data corruption errors and task abort problems. These errors were all traced back to the TCA board and operating system vendors.

2.31.1.2 Cost/Funds Status

- CWO 31 has been modified and funding has been increased to cover customer requested overtime.

2.31.1.3 Schedule Status

- On Schedule. A new schedule for the remaining of FY 1997 will be released on June 30, 1997.

2.31.2 Quality/Config Management

- Idle

2.31.3 Problems and Proposed Solutions Summary

- None.

2.31.4 Plans

- Continue to provide TCA support with data corruption anomaly
- Continue with design of translator.
- Continue to support all user's of FCS and GAS functions
- Continue to support 890-201 (TCA) changes and testing

2.32 CWO 32 - ACS TCA Common Services

2.32.1 Performance Status

2.32.1.1 Major Accomplishment

- No FTDD support was required by the TCA team this month.

2.32.1.2 Cost Funds Status

- CWO 32-2 For FY97 is on budget.

2.32.1.3 Schedule Status

- On Schedule

2.32.2 Quality/Config Management

- Idle.

2.32.3 Problems & Proposed Solutions Summary

- None.

2.32.4 Plans

- Supporting the TCA / FTDD integration effort as needed.

2.33 CWO 33 - DSCC Radio Science Communications Processor (RSCP) Software

2.33.1 Performance Status

2.33.1.1 Major Accomplishment

- Completed Acceptance Testing of new RSCP operational software, OP-D, version 400 software. Test and Transfer meeting held resulting in software being authorized for soak.
- Continued work on NMC Closed Loop Control.

2.33.1.2 Cost Funds Status

- CWO 33-2 For FY97 is going to overrun by 10k due to additional hours to meet the customer requirement. Expect to be back on budget in the next quarter due to diminished involvement by the Radio Science CDE.

2.33.1.3 Schedule Status

- JPL work order manager maintains the schedule for this CWO.

2.33.2 Quality/Config Management

- Idle.

2.33.3 Problems & Proposed Solutions Summary

- None.

2.33.4 Plans

- Continue work on the Closed Loop Control Task.

2.34 CWO 34 - Alaska SAR Programming Support was complete 15 Sep 96

2.35 CWO 35 - Never Placed On Contract

2.36 CWO 36 - Section 395 Programming Support

2.36.1 Performance Status

- Performed Multi-Mission Spacecraft Analysis (MSAS) test analysis and documentation.

- Summary of V3.1 Testing:

- Test Runs - 222 AR's opened - 66 AR's closed - 174 Rejected AR's - 61

- Maintained MSAS test web pages - http://puente/MSAS/testdocs/home.html
- Daily email Anomaly Report (AR) notifications to developers (100 emails)
- Weekly updates to AR pages and MSAS AR database (186 AR's)
- Updated databases for applications, developers, and CMSAS information

2.36.1.1 Major Accomplishment

- Completed V3.1 Testing on June 6
- June 2 V3.1 Delivery
- June 3 V3.1 Deliver Review Board (SysDR)
- June 6 V3.1 Completed Testing

2.36.1.2 Cost Funds Status

- CWO 36 -1 For FY97 is on budget.

2.36.1.3 Schedule Status

- The schedule is maintained by JPL.

2.36.2 Quality/Config Management

- Ongoing.

2.36.3 Problems & Proposed Solutions Summary

- None

2.36.4 Plans

- Cleanup web pages, review new development activities, and two week vacation by assigned software engineer.

2.37 CWO 37 - Work Order Processing System (Section 644) - Closed 4 October 96

2.38 CWO 38 - Schedule, Estimating, Tracking System (SETS) (Section 644)

2.38.1 Performance Status

A contractual action is required by JPL to close this CWO.

2.38.1.1 Cost Funds Status

- CWO 38 overran the original target cost.

- A CWO supplement has been executed to allow JPL to fund the overrun. Although quoted to include fee, this supplement is not fee bearing because it is being executed to cover an overrun.

2.39 CWO 39 - SPMC Configuration Management Support

2.39.1 Performance Status

2.39.1.1 Major Accomplishment

- Continued role as acting manager for the SPMC group while the CWO remains open. Primary focus for the month of May 1997 has been ACS, DOSL and NCP.

- ACS: Participated in SPMC builds for the following Acceptance Testing software: TCA 10.1.2, TDG 3.25 (ARC-TEST-500 SIM files), TGC 7.1.8, SEM-RT/DP 1.2, RNS 1.0.9, GMP 2.2.0, HSPT 5.2. Due to additional diskettes required per build set and strapping of both PDOS and VxWorks diskette drives to the same "blue box", there does not seem to be any significant savings in time between the all-PDOS builds and the part-PDOS/part-VxWorks builds for TCA. Also, in an effort to meet schedule milestones, both TCA and TDG were built in conjunction with the ISDS Team. While this combines similar processes, it introduces an undetermined level of risk by eliminating the verification step deemed critical in past PDOS builds.

- TCA 10.1.2 patches were submitted (ARC-TCA-120/121) to bypass ISDS CM and SPMC builds for a new TCA version (RDD was not provided to reflect change). Generated an SPMC build summary status report for ACS. Re-built MSW, 890-201 and FCS in response to a new TCA build for version 10.1.3. TCA/PDOS was successful, however, the VxWorks environment required modifications prior to generating the new TCA/VxWorks version. A patch tape for RNS 1.0.9 was archived as RNS, GAD, CDR and GMP copies were prepared for Soak.

- DOSL: Monitored hardware progress on setting up 'wombat' as the new DOSL "server". System 'durango' was swapped with 'tuff4', allowing all DOSL systems to have identical hardware configurations. Shared disks between 'durango' and 'wombat' were separated so that 'durango' could remain on the ILAN while 'wombat' could be placed on the OPS LAN. The DOSL machines were moved to DTF-21, and preliminary testing of software transfer across the OPS LAN was performed by Chris Leng and Bob Balkenhol. Began developing an SPMC DSN "baseline" of deliverable software (to be placed on the DOSL server and subsequently replicated on the DOSL systems).

- NCP: New procedures were provided for installing NCP software onto DFS. Built software for NPP 1.0.0, TIA 1.0.0a, TS 1.0.3, DRPT 1.0.0/1.0.0a, and MCIS 1.1.2b. The latter was installed on DFS and AFS for both NCP and ACS access, respectively.

- Other programs processed: MSW 1.8.2 for VadsWorks, NRT 5.2.3, BVR 4.0.0, SPA-R, ETC (building 238), resubmittal of NRT 5.2.3, BVR 4.1.0, BVR 4.2.0, MDA 5.1.1. Attended an presentation on Y2K. Provided slides for an overview of DOSL. Interfaced with the QA group to discuss code evaluation on NCP and mod kit preparation on ACS.

2.39.1.2 Cost Funds Status

- CWO 39-1 is being extended through the end of July, 1997. A CWO Supplement has been submitted.

2.39.1.3 Schedule Status

- This is an LOE support task.

2.39.2 Quality/Config Management

- NA

2.39.3 Problems & Proposed Solutions Summary

- None.

2.39.4 Plans

- Continue support.

2.40 CWO 40 - Network Operations Control Center Support was closed Feb 97.

2.41 CWO 41 - ISDS Additional Tasks was complete 15 Sep 96.

2.42 CWO 42 - Arrayed Doppler - PCWO canceled

2.43 CWO 43 - System Admin Support to EIS

- CWO 43 is a Cat A task and not directly managed by ISDS.

2.43.1 Cost Funds Status

- CWO 43 is expected to complete JPL FY96 on budget compared to the submitted cost estimate.
- George Wang was interviewed and hired for this CWO with the approval from JPL and relocation expenses in the amount of $4,961.67 will be charged in Oct.96 for JPL FY97. Currently this CWO is going to overrun due the authorized overtime. A supplement is needed to cover for this over run.

2.44 CWO 44 - DCE Cell Design Consultation was complete in April 97

2.45 CWO 45 - Sea Dragon Command Center Test Bed

2.45.1 Performance Status

2.45.1.1 Major Accomplishment

- Mapped out process flow for Briefing Slide system
- Designed data architecture for Slide system
- Began work on port to NT platform

2.45.1.2 Cost Funds Status

- CWO 45-1 has been extended and funding has been increased to cover customer requested overtime and an increase in the travel budget.

2.45.1.3 Schedule Status

- Schedule being maintained by JPL

2.45.2 Quality/Config Management

- Idle

2.45.3 Problems & Proposed Solutions Summary

- None

2.45.4 Plans

- Continue work on Slide API
- Design Blue Force Update system and architecture
- Possible NT port on the horizon

2.46 EIS File Service Technical Writer

2.46.1 Performance Status

- EIS File Service - Current Site (http://eis/ets)

- Two attempts were made to change all links to make the site readable to people dialing in from ISPs and sites like Goldstone. Complications occurred with RCS and the site's backups had to be restored. The assigned writer suggest that we grep to find the spots where eis/ets needs the domain added. Using that plan she completed the addition of the domain name in two days.

- A JPL staff member needed to refer to the images collection on AFS in an upcoming Monday talk, but it needed attention. She spent the next few days making it presentable.
- On Monday he spoke at Von Karman about EIS File Service home page support, along with other JPL staff members, and she assisted by presenting different home pages and images on all three computer platforms during the talk. She also fielded questions afterwards.

- She began the process of getting the EIS File Service (both current and development sites) world-readable. Just a few days after submission, JPL Document review okayed both current and development site for worldwide access. The ACLs were changed on May 21.

- EIS File Service site (in development)

- Over 1,100 e-mail surveys sent out from a list provided by JPL. One survey receiver called to ask about the website redesign process and requested the ISDS technical writer come speak to his group (in 312) about our results in a few months.

- The EIS File Service survey which was dispersed the week of May 2 had about 12 people respond to part one, and 4 to part two. The results were given to JPL for analysis. Meanwhile, the assigned writer developed a "nonframes" alternate way into the new site, and discussed the problems to overcome with such a setup with JPL system personnel.

- A JPL team member unintentionally e-mailed out the eis/fil address to EIS_FIL team as the official Location for Customer Home Page, so the assigned writer make sure by next morning that the site looked as presentable as possible, for those who chance to look at it. She got Photoshop 4 and learned how to make transparent .gifs (three graphics on the site needed the backgrounds deleted). Lots of things got fixed up during the week, and the site is coming together nicely.

- The NonFrames option for new site abandoned since Netscape the JPL institutional core product and all employees accessing site can be expected to have frames capability. Account forms setup decided on: no click-on choice for AFS/DFS on individual forms; so she instead wrote separate framesets that are invoked from "Your Account" section. All links that should call a frameset are now rewritten, site-wide. The Logo was worked on, to smooth background, full domain path added to entire site, and all files now receive footer with URL and last updated date. The survey results were analyzed by the writer and changes made accordingly, i.e., change password and user guides mentioned on core page, since these items considered uppermost in importance by survey respondents.

- Tool Catalog switching to new site was a major problem for which no one could offer solution. After some thought, the assigned writer got idea to leave it where is was, on eis/ets (since it *is* ETS or the Enterprise Tool Service, the original name of the file service -- and e-mailed a co-op employee who was the "only person" who knew how the tool updating works, and was in transit cross country and enlisted his help/advice. By late Friday, he had made happen what on Monday was thought to be our major hang-up. This is major hurtle which would still be unsolved without her follow through. Even though she knew relatively nothing about the design or operation of the tool catalog.

- At the May 29 FIL team meeting, the site was released internally for comment, with warning that some forms (View, Close account) were still being worked on. With the addition of Search the next day (May 31), the development site was ready for public release, since modifications in the instructions can go on without any lapse in user service (i.e., the instructions already there have worked for 2 years, and so they "will do" until I can review and improve them).

2.46.1.1 Major Accomplishments

- Release of the new sites for demonstration.

2.46.1.2 Cost/Funds Status

- For FY97 is on budget.

2.46.1.3 Schedule Status

- EIS File Service -- current site: The site is still maintained and working. There are no goals for this site except that it work until we complete the switch to new site.

- EIS File Service -- development site: Complete the testing and cut over as the “official site.”

2.46.2 Quality/Config Management

- Revision control is in place.

2.46.3 Problems and Proposed Solutions Summary

- None

2.46.4 Plans

- EIS File Service: Start modifying the new site, now that it is working, and all links hot. The end of first week in June is the new target for when it will be demonstrated for a limited group.

2.47 CWO 47 - VLBI Project Software Engineer

2.47.1 Performance Status

- Many code changes were made in order to improve robustness. This included many asserts, clarified many error messages, added standardized error checking and reporting for many calls, and placed them in the subroutine library.

- Several more subroutines were written, including NoPath, OnlyPath, strrindex, BSearchClose, and VFREE.

- All global variables are now initialized in clearly defined places.

- Special memory allocation/deallocation routines are being used that can perform additional logging. They are used with dmalloc, which has found and enabled fixing all memory leaks.

- Many command line switches added to tcfgen, and many enhancements made to the ASCII dumping routines.

- Wrote code to automatically derive clock setting events (CSEs) as well as regions of valid data, and re-wrote all logging output so verbosity is controlled via command line switch -verbose=#. Also added some 'range' (distance from station to satellite) computations, based on NAIF (a large JPL sub-routine library).

- The Time Difference File (TDF) parser now checks for smoothness on second derivative, and checks for ResidualRangeDeriv glitches. It returns all found glitches and gaps (for auto CSE detection).

  The Phase Residual File (PRF) parser now returns all found glitches and packet jumps (for auto CSE detection).

2.47.1.1 Major Accomplishments

- Extensive profiling of the code was done. As a result of this, the Master Range List is sorted and a few other optimizations done related to filtering, which improved performance by 20%. For the function TCFTimestampToIndex in tcfSubrs.c, BSearchClose is called, which does a binary search rather than a linear search. This has improved performance by 20%. Overall performance improvements of about 40%, which is significant since the test cases used to take 25 minutes to run.

2.47.1.2 Cost/Funds Status

- On budget.

2.47.1.3 Schedule Status

- Schedule is maintained by JPL.

2.47.2 Quality/Config Management

- All the software is under version control using cvs, a standard version control system, and we are using standardized make files.

2.47.3 Problems and Proposed Solutions Summary

- The machines now being used are slow, so compiles and tests take a long time to run. It was suggested the project get a faster machine, which is being ordered.

2.47.4 Plans

- Continue to enhance tcfgen and clean up source code and documentation.

2.48 CWO 48 - MGSO Documentation Technical Support

2.48.1 Performance Status

Version 22.2:
Cassini High Speed Simulator (HSS) Test Plan/Test Specification

- Final hardcopy sent to SEQ System Engineer.

Cassini HSS Test Plan/Test Specification

- Reformatted document. Sent out for review.

Cassini HSS Users' Guide

- Signature cycle complete. Prepared document for submission to library. Submitted to library. Sent final hard copy the SEQ System Engineer.

SST Test Plan/Test Specification

- Made further Revisions. Signature cycle complete. Prepared document for submission to library. Submitted to library. Sent final hard copy the SEQ System Engineer.

APGEN Test Plan/Test Spec.

- Signature cycle complete. Prepared document for submission to library. Submitted to library. Sent final hard copy the SEQ System Engineer.

SEQTRAN Test Plan/Test Specification

- Signature cycle complete. Prepared document for submission to library. Submitted to library. Sent final hard copy the SEQ System Engineer.

SFOC-1-SEQ-ANY-SASF

- In signature cycle. Spoke with author & SEQ System Engineer over phone to discuss revisions.

SFOC-2-SEQ-SEQ-SSF

- Sent electronic copy with new revisions out for review. Sent revised copy out for review to the author. Currently in signature. Spoke with SEQ System Engineer over phone to discuss revisions. Spoke with author over phone to discuss revisions.

Test Specification - SEQ

- Sent out for review. Signature cycle complete. Prepared document for submission to library. Submitted to library. Sent final hard copy the SEQ System Engineer.

Work Implementation Plan

- Made further Revisions. Signature cycle complete. Prepared document for submission to library. Submitted to library. Sent final hard copy the SEQ System Engineer.

Work Implementation Plan Revision A

- Made further revisions. Signature cycle complete. Prepared document for submission to library. Submitted to library. Sent final hard copy the SEQ System Engineer.

Version 22.3

STS Software Requirements Document

- Signature cycle complete. Prepared document for submission to library. Submitted to library. Sent final hard copy the SEQ System Engineer.

Work Implementation Plan

- Made revisions. Currently out for review & signature.

Version 23

TAS Documents

- Made revisions to Acceptance Test Plan Rev. A. TAS RDD still being reviewed by author.

- Prepared and distributed a weekly Planning and Sequencing Document Tracking Status Report for the following versions:

    - Version 22.2
    - Version 22.3
    - TAS Documents

- Met with MGSO Librarian to obtain document numbers and histories needed for documents.

2.48.1.1 Major Accomplishments

- Completed seven documents.

2.48.1.2 Cost/Funds Status

- On budget.

2.48.1.3 Schedule Status

- Schedule is maintained by JPL.

2.48.2 Quality/Config Management

- All documents are under version control.

2.48.3 Problems and Proposed Solutions Summary

- None

2.48.4 Plans

- To continue progress with Version 22.2 , 22.3, and 23. To complete TAS documents.

2.49 CWO 49 Duplicating and Distribution Support

2.49.1 Performance Status

- Developed a Travel Form Tracking Application for JPL travel department.

- Built an ad hoc function for Work Order System to close work orders that can not be closed or have been being opened for so long. Also built a prototype for The Vended Printing application. Down-loaded software to test the bar code reader for IRMA (Integrated Record Management Application.)

- Created and installed the queries for the 10 updated management distribution lists on all machines in Document Distribution that run the Document Distribution List Management System. The list names now track with lists that users were familiar with before the new Base Pay Program was implemented, such as All Group Supervisors, All Section Managers, etc.

- Completed all the work for the Library Subscription Renewal Memo application. This application will be used by the Library Acquisition Group for their Annual subscription renewal process.

- Provided on-going support for the Duplicating and Distribution group and others as necessary. A proximally 25 tech support phone calls received this month. All the questions/problems were answered/solved.

- Compiled a list of the in-house applications used by the distribution group for the supervisor of Duplication and Distribution. To complete this task required searching through all the four machines used by that group for running applications.

- The Copier Information Management System is 99% done.

- One staff member attended weekly meeting with Archives and Record group for the requisition and implementation process of the Online Archive System.

- Continued with web page(s) development for the Logistics Information Technology Office (LITO); determined training needs for the month and scheduled training as required; and continued learning about customer satisfaction surveys from various sources, technical experts, books, etc.

2.49.1.1 Major Accomplishments

- Provided a test copy of the Travel FORM Tracking Application to K. Gerfen. The function of this application is to keeping track all of the void airline tickets used by the laboratory. A user in travel department wants to track each record for history and also to print out a report. This application allows the user to do these functions. She will test and install this application to the user's computer.

- Completed update of LITO home page. Added new sections: Technical Bulletins and Announcements and Events.

2.49.1.2 Cost Funds Status

- This CWO will be underfunded by 11K if the full staff spends full time supporting this CWO as originally estimated. As of May 23, 1997 actual hours worked are greater by 36 hours than the projected hours. However, it is not anticipated that the fully projected level of effort will be required to complete the tasks assigned.

2.49.1.3 Schedule Status

- Schedule Maintained by Code 644.

2.49.2 Quality/Config Management

- N/A.

2.49.3 Problems and Proposed Solutions Summary

- N/A

2.49.4 Plans

- Continue software development, day-to-day information technology support, Help Desk and Division 64 support as required.

2.50 CWO 50 Electronic Forms and Inventory

2.50.1 Performance Status

- **Forms Management -** Completed the first round of testing of the Form Services Application, and addressed ten of the seventeen issues that resulted from it.

- The draft Functional Design Document for the Forms Management System was reviewed. Several comments were received and will be incorporated into the document.

- Updated the webpage with new forms.

- The new Travel forms are now in the process of being tested by a MAC user and a PC user who have agreed to help with the testing. If they do not have any more problems, the travel forms will be released.

- We continue to response and help users on FormFlow. The number for this month was approximately 70 calls. The calls concerned using forms, databases, how to download, installing the software. etc.

- Working on a data collection effort for Division 641 and the FMS project to assign a "process to every form" using the DMIE process id. Division 64 would like to identify all of the forms that could be obsolete or replaced by the NBS project.

- **Inventory Maintenance -** Weekly maintenance and backup of the portion of the Inventory Control System that resides on the IBM 8130 continued. Provided inventory data for three spreadsheets of items for the JIT processing. The request was to give 6 month usage of items. Also received a call at home for a failure of the inventory system. The failure was due to the operations personnel. The error was fixed and the system processing was completed.

2.50.1.1 Major Accomplishments

- Forms Management - Configured the FormFlow MS SQL Server native mode database driver to work correctly with the Human Resources database. This eliminates the need for Open Database Connectivity, which requires installation and configuration for each client workstation.

2.50.1.2 Cost Funds Status

- This CWO will overrun by 6K if all projected hours are delivered.

2.50.1.3 Schedule Status

- Schedule maintained by Code 641.

2.50.2 Quality/Config Management

- N/A.

2.50.3 Problems and Proposed Solutions Summary

- Moving FSA to the Forms server on the JPL-64 domain for customer testing. This will require cooperation from the JPL-64 network administrators.

2.50.4 Plans

- Continue to complete design of FMS, development of FSA modules, and provide user and inventory system support as required .

2.51 CWO 51 Physical Oceanography Distributed Archive Center was complete Jan 97.

2.52 CWO 52 NPP Development Lab

2.52.1 Performance Status

2.52.1.1 Major Accomplishments

- The facility has been furnished and phone and data cabling is complete. The T3 has been slipped by PacBell significantly and will be on-line on 23 June.
- There were a number of items recently identified for the lab last month. Most have been procured and installed. These include white boards, a printing white board, a large conference table and chairs. Delivery of the conference room table has been slipped to the first week in July by the manufacturer.

2.52.1.2 Cost/Funds Status

- CWO 52 actual cost are not all accounted for yet.

2.52.1.3 Schedule Status

- The target move-in date has been slipped to 14 July.

2.52.2 Quality/Config Management

- N/A

2.52.3 Problems and Proposed Solutions Summary

- Pacific Bell has slipped installation of the T3 again. Operational testing of the T3 will begin on 23 June. The planned move-in date has been slipped to 15 July. Cross your fingers.

2.52.4 Plans

- Cost analysis is complete for the period from 1 Feb through 30 May and an estimate has been submitted to JPL contracts. A cost estimate must be developed for the period from 1 June to the end of the FY. This still needs to be done.

2.53 CWO 53 - 34 Meter Array Development Support

2.53.1 Performance Status

2.53.1.1 Major Accomplishments

- None.

2.53.1.2 Cost Funds Status

- This CWO is on Budget.

2.53.1.3 Schedule Status

- Schedule maintained by JPL.

2.53.2 Quality/Config Management

- N/A.

2.53.3 Problems and Proposed Solutions Summary

- The assigned test analyst is completing another assignment and is only part-time until June. Since the subsystem is not scheduled to be operational until the end of 1999, and is still in an early phase of development, this delay will not affect his participation in test development.

2.53.4 Plans

- Study the DTM Test Plan/Procedure document and identify tests that apply to the FSP.

2.54 CWO 54 - Galileo CDROM Technical Writer

2.54.1 Performance Status

- Sue Kientz worked on the "Launchpad" section for Venus/Earth and Gaspra/Ida. She is planning to write the "Mission Operations" section after "Launchpad." She also completed researching, prepared and submitted a section about Shoemaker Levy-9.

2.54.1.1 Major Accomplishments

- Submitted completed “Launchpad” sections about Venus/Earth, Gaspra/Ida and Shoemaker Levy-9.

2.54.1.2 Cost Funds Status

- This CWO is going to be underrun by 19k if the effort is ended in June. However, the customer has indicated the effort will continue beyond June.

2.54.1.3 Schedule Status

- Schedule maintained by project. All schedules have been met to date.

2.54.2 Quality/Config Management

- N/A.

2.54.3 Problems and Proposed Solutions Summary

- None

2.54.4 Plans

- Continue developing the document.

2.55 CWO 55 - TC and DM Test Support

2.55.1 Performance Status

- The assigned software engineer continued development of regression tests for the Telemetry Input system (TIS) V22.4.
- Started testing the following new TIS projects (TIS) Change Requests (cr) and Anomaly Reports (ar):
- **ar5439** - Started testing on Voyager.
- **ar7080** - Started testing on Lunar Prospector. Working on defining if the data delivered is good.

- **cr6814** - Started testing on Lunar Prospector. Working on getting a definition of what was changed.
- **cr6909** – Started testing on Mars 98 and Deep Space 1 (Solaris).
- **TIS034** - Started testing on Mars 98 (Solaris).

- Found the following problems and entered Anomaly Reports for them:
- **7844** Title: Channelized data justification problem Criticality: 2 Closed
- **7894** Title: bad macros in SEAtis By: Criticality: 4 Closed
- **7943** Title: M98 MCFC flag set incorrect Criticality: 4 Closed
- **7974** Title: TIS ignores Timeout Anomalies By: Criticality: 3 Closed
- **8144** Title: VGRtis Missing qqc_extract_end SFDU Overall Criticality: 4 Open
- **8148** Title: VGRtis missing qqc_extract_end parent_id Overall Criticality: 4 Open
- **8172** Title: Wrong CHDOs for M98 Lander Chan. Data By: Overall Criticality: 4 Fixed
- **8177** Title: M98 no partial packet By: Overall Criticality: 3 Fixed
- **8210** Title: M98 Pre-Channel Garbage Overall Criticality: 3 Fixed
- **8264** Title: SEAtis producing incorrect inv.pkt info. Overall Criticality: 4 Fixed

2.55.1.1 Major Accomplishments

- Completed testing the following Change Requests (cr) and Anomaly Reports (ar):
- **ar7414** - Test was completed for Galileo, Mars Global Surveyor, Seawinds, Ulysses, and Voyager (SunOS). These tests were not automated.
- **ar7548** - Test was completed for Multimission (Solaris). This test was not automated.
- **ar7667** - Test was completed for Multimission and Mars 98 (Solaris). This test was not automated.
- **ar7733** - Test was completed for all missions. This test was not automated.
- **ar7793** - Test was completed for Multimission and Mars 98 (Solaris). This test was automated.
- **ar7844** - Test was completed for Multimission and Mars 98 (Solaris). This test was automated.
- **ar7894** - Test was completed for Seawinds (SunOS). This test was not automated.
- **ar7943** - Test was completed for Multimission and Mars 98 (Solaris). This test was automated.
- **ar7974** - Test was completed for Multimission. This test was automated.
- **ar8172** - Test was completed for Mars 98 (Solaris). This test not was automated.
- **ar8177** - Test was completed for Mars 98 (Solaris). This test was automated.
- **ar8210** - Test was completed for Mars 98 (Solaris). This test was automated.
- **cr6780** - Test was completed for Multimission (Solaris) and Cassini (HP). This test was automated.
- **cr6836** - Test was completed for Voyager (Solaris). This test was not automated.
- **cr6841** - Test was completed for Multimission and Mars 98 (Solaris). This test was automated.
- **cr6847** - Test was completed for Multimission and Mars 98 (Solaris). This test was automated.
- **cr6861** - Test was completed for Seawinds (SunOS). This test was automated.
- **cr6865** - Test was completed for Lunar Prospector (Solaris). This test was not automated.
- **cr6910** - Test was completed for Multimission. This test was automated.
- **TIS036** - Tests were completed for Voyager (Solaris). (Entered two anomaly reports against this version). Tests have not been automated yet.

2.55.1.2 Cost Funds Status

- Paperwork for CWO is in JPL contracts.

2.55.1.3 Schedule Status

- On schedule for version builds.

2.55.2 Quality/Config Management

- N/A.

2.55.3 Problems and Proposed Solutions Summary

- N/A

2.55.4 Plans

- Finish testing and creating regression tests for V22.4. Prepare for and be present at V22.4 SyDR.

2.56 CWO 56 - SPC and DMD Implementation

2.56.1 Performance Status

- **PLASMACAL**
- A preliminary set of goals and milestones for the delivery of the plasma calibration software has been developed.
- Additional software for the dis-assembly of SPR files has been located. This software, originally written by a person now on contract to JPL, should prove useful in developing the plasma calibration software.
- Access to the machine (oscar) where new SPR files are temporarily stored has been acquired, allowing "fresh data" to be transferred for testing and analysis.
- **DMD Monitor**
- The script for the Macintosh was completed and the Macintosh is able to send out the signal to the Linux Box. C code for the Linux box was also completed and the Linux box is able to receive the signal form Macintosh. The next step is to meet with the customer to test the monitoring system.

2.56.1.1 Major Accomplishments

- Completed software for the DMD Monitor.

2.56.1.2 Cost Funds Status

- This CWO is on budget.

2.56.1.3 Schedule Status

- Schedule maintained by JPL.

2.56.2 Quality/Config Management

- Continuing to get oriented to existing software and documentation.

2.56.3 Problems and Proposed Solutions Summary

- One problem with the existing set of SPR files used for testing PLASMACAL has been identified. The files provided had been transported to the development machine (quimby) via FTP using the ASCII rather than BINARY mode. Using BINARY mode produces files that look a **lot** closer to the interface specifications! Also an upgrade to the operating system on quimby resulted in interruption of ftp and X windows access for several days.

2.56.4 Plans

- **PLASMACAL**
- Continue analyzing available SPR files to understand content and structure. Identify the data available in the SPR files (and elsewhere) relevant to DRVID data analysis. Identify program functions and related intermediate files for use in producing solar plasma calibrations
- **DMD Monitor**
- Develop user operator manual and make any necessary changes to the software after the test.

2.57 CWO 57 – Unix System Administration Support

2.57.1 Performance Status

- Routine system maintenance and administration tasks including software upgrades and installations, regular system backups, and providing user support were performed.

2.57.1.1 Major Accomplishments

- Integrated K-460 servers into existing configuration, 2) began migration of older systems to HP/UX 10.20, and 3) Installed IDL version 5.0 for general use.

2.57.1.2 Cost Funds Status

- This CWO is on budget.

2.57.1.3 Schedule Status

- Schedule determined by JPL.

2.57.2 Quality/Config Management

- Section e-mail, storage, and backup schemes continue being investigated for possible improvements.

2.57.3 Problems and Proposed Solutions Summary

- None at this time

2.57.4 Plans

- Continue migration to HP/UX 10.20 on HP systems. 2) Evaluation of alternative archive, backup and storage solutions. 3) Begin planning for eventual migration to 100BaseT in Building 238. 4) Install and integrate newly arriving HP C-180 and K-260 systems. 5) Continue ongoing system administration and support.

2.58 CWO 58 – Never Placed on Contract

2.59 CWO 59 – Antenna Sim Lab Support was complete in June 97

This was a six week Unix System Admin. task to clean up some servers and user accounts and perform system upgrades. This task was recently completed (practically before the contract ink was dry) on schedule and on budget.

2.60 CWO 60 – Command Processor Assembly S/W Supt.

2.60.1 Performance Status

Work has begun on this CWO. Final paperwork has not yet been received from JPL contracts.

2.60.1.1 Major Accomplishments

- Ken Bell began supporting Richard Benesh on upgrades to the Command Processor Assembly code on May 23rd, 1997. He is currently coming up to speed on the code and the documentation.

2.60.1.2 Cost Funds Status

- Paperwork for CWO is in JPL contracts

2.60.1.3 Schedule Status

- Schedule being maintained by JPL

2.60.2 Quality/Config Management

- Idle

2.60.3 Problems and Proposed Solutions Summary

- None

2.60.4 Plans

- Continue to come up to speed on the software and documentation

3. Contract Cost Status

3.1 NASA Form 533M/Q

"A NASA Form 533M report shall be completed in accordance with the instructions on the reverse side of the form. A 533M shall be prepared for the total contract and for each CWO and for each CWO Level 2 WBS Item or below, as mutually agreed upon during negotiations. Reporting categories on each 533M shall be the elements of cost (e.g., labor hours, labor dollars, overhead costs, material, subcontracts, other direct costs, G&A) and profit or fee. A NASA Form 533Q shall be completed in accordance with the instructions on the reverse side of the form. Reporting levels and categories shall be the same as those required for the 533M."

3.1.1 General

All CWOs are on contract with the following exceptions: CWO 41-1,55,59 and 60.
DCAA has signed off on new provisional billing rates, making last month's unofficial rates now official (Appendix 7).

3.1.2 Reports

The following reports are included in this month's deliverable.

3.1.2.1 NASA 533M - JPL FY 1997 (Appendix 2)

The attached NASA 533M report is for the Infotec Development, Inc. accounting period Sept. 21,1997 to accommodate JPL FY97 . As agreed at the 11 September 1995 CWO/Cost Management meeting with JPL, the ISDS Team is reporting only the current JPL fiscal year (1997) data in the NASA 533. A summary report has been included that shows total costs to date by CWO. The September 1995 Monthly Activity Report (MA006) contains all JPL FY95 year-end cost data detail.

Also per agreement at the 11 September 1995 CWO/Cost Management meeting, we are reporting the latest received negotiated estimate for each CWO in the last column of the NASA 533.

Per JPL request, the Contract Value Cost *summary* on the NASA 533 reflects the *total negotiated costs* (last column) of all CWOs for JPL FY97 only. Since CWOs are used by JPL to establish funding and are based on latest revised cost estimates (actual costs plus estimate to complete), CWOs clearly do not track changes only in scope or original baseline estimates. ISDS attempts to maintain individual CWO Contract Values (2nd to last column) internally as *baseline target costs*. The ISDS Microframe cost management system is designed for building these baseline estimates "bottoms up" and can only be revised easily for changes in scope. Due to the following reasons, CWO baselines are becoming more difficult to maintain and are resulting in less meaningful individual CWO Contract Values.

- Most CWO efforts are not task-driven, since the period of performance for most CWOs starts and ends commensurate with the JPL fiscal year. It is difficult to maintain a target cost associated with the task, when the task may continuously change to fit the period of performance.
- The staffing for most CWOs are level of effort. Deltas in past labor costs are often attributed to a combination of scope, staffing, personnel rate, and requirement changes. Since CWO Supplements are based on the total latest revised estimate, it is often difficult to determine the portion of cost associated with a baseline change and over/underun.

- Our JPL technical customers are often very involved in the staffing process. When personnel changes result in cost deltas, it is often unclear whether the baseline Contract Value should be changed.

The Contract Value Fee summary header reflects the total fee pool established by negotiated CWOs. The Fund Limitation is the total of all individual CWO funding for JPL FY97. Since some CWO's may be partially funded, or funded only for PCWO effort, this amount may differ from the sum of the Contract Value Cost and Fee.

Billing values are totals from ISDS contract inception through the reporting date.

3.1.2.2 NASA 533Q - JPL FY 1997

Appendix

3.1.2.3 Monthly Whole Hours/Dollars Report - JPL FY 1997(Appendix 3)

This report depicts monthly and cumulative whole hours and whole dollar cost estimates associated with each CWO. *It is based only on JPL FY 97 CWO effort.*

3.1.2.4 ISDS Cumulative Costs - From Contract Inception (Appendix 4)

This report summarizes cumulative actual costs and total latest revised estimates from inception of the contract, including JPL FY 95, 96 and 97 effort. It is provided per agreement at the 11 September 1995 CWO/Cost Management meeting with JPL and per NASA Handbook 9501.2B (Procedures for Contractor Reporting of Correlated Cost and Performance Data) Section 301, Paragraph 4b (10).

3.1.2.5 ISDS Personnel Allocation (Appendix 5)

This report is provided per request of JPL. It depicts the current approximate allocation of each ISDS employee to each CWO, at the end of the reporting month. This table only illustrates the association of an employee to a CWO and does not reflect equivalent man-months budgeted, percentage of the month actually worked, or any vacation/sick time.

3.1.2.6 CWO Funding Projections (Appendix 6)

This table projects the date that current CWO funding expires, if prior to the end of the period of performance. It also identifies whether 75% of funding will be reached within the next 30 or 60 days, for purposes of the contract funding limitation clause.

3.1.3 Subcontractor Costs

Subcontractor costs reported in November are based on CSC November period of performance costs reported by the CSC Program Management Office (PMO). NASA 533 subcontractor costs are stated in dollars that include CSC overhead and G&A. The overhead and G&A summaries on the NASA 533 depict IDI burdening on all elements of cost.

3.2 Overhead Report

"An overhead report shall provide a listing of the latest bidding, billing and actual overhead and G&A rates by cost centers. The fiscal year calendar shall also be included."

Attached as **Appendix 7** is the draft letter from the Defense Contract Audit Agency (DCAA), stating the ISDS provisional billing rates (see JPL line items). **Appendix 8** states the current overhead rates used in

estimating FY97 costs in this month's report. ISDS accounting and NASA 533 reporting are based on the calendar provided as **Appendix 9**.

The following is a summary of ISDS overhead burdening by cost center.

IDI Employees

I. Apply IDI fringe rate (salary or salary-plus, as applicable) to direct labor dollars.

II. Apply ISDS Indirect Facilities rate (onsite or offsite, as applicable) to direct labor dollars. This rate is unique to the ISDS program, and is not company-wide.

III. Apply IDI G&A to the resulting total burdened amount (subtotal after I and II above).

CSC Subcontractor Costs

I. CSC applies company-unique overhead and G&A to direct labor dollars, and provides this as their invoiced cost to IDI.

II. Apply ISDS Indirect Facilities rate (onsite or offsite, as applicable) to CSC burdened amount in I above.

III. Apply IDI Material & Handling to CSC burdened amount in I above.

IV. Apply IDI G&A to the Indirect Facility burden pools, itemized in II.

Consultant (IDI only)

I. Apply IDI G&A to consultant invoiced dollars.

ODC's (billed by IDI only)

I. Apply IDI G&A to prime dollars.

3.3 Reconciliation

"A reconciliation report shall be prepared in accordance with the instructions on the reverse side of the 533Q.

The following is a program-level reconciliation of the contract estimates for JPL FY97 only. Due to the varying contractual status of each CWO, it is recommended that the narrative for each CWO be referred to when making deductions about cost performance or funding status. Several CWO Contractor Estimates have got ahead of the contractual paperwork and are more up-to-date than the Negotiated Estimates. In some cases, Contractor Estimates reflect requirements given verbally to ISDS, but not yet received in formal CWO Supplements. Because of this, we do not feel that a program-level reconciliation necessarily depicts an accurate cost comparison.

> ***We have provided the most accurate estimates possible in the Contractor Estimate for these CWOs at the time of this report, regardless of the contractual status, in order to provide JPL with the most current cost projections possible.***

A) Total of Individual CWO Contract Values (Based on ISDS target baselines)	$6,486k
B) Total Negotiated Cost Estimates (Based on CWOs signed by JPL Procurement)	$6,420k
(C) Estimated Final Contractor Estimate	$5,956k
D) Projected Underun Delta (B-C)	$464k
E) Total CWOs not signed by JPL	u$66K

4. RECOMMENDED JPL ACTION

"The Contractor shall identify all critical items that require JPL attention, resolution and/or assistance to successfully maintain or improve the direction of the CWO in order to meet CWO objectives."

4.1 Contract Work Orders (CWOs)

- ISDS requests formal JPL closure to CWO 34. All effort has been completed.

5. Appendices

5.1 Schedules

5.2 NASA 533M - JPL FY 1997

5.3 Monthly Whole Hours/Dollars Report - JPL FY 19967

5.4 ISDS Cumulative Costs - From Contract Inception

5.5 ISDS Personnel Allocation

5.6 CWO Funding Projections

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5.7 IDI FY96 Provisional Billing Rates

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5.8 IDI FY96 Estimating Overhead Rates

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5.9 ISDS Accounting/Holiday Calendar